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ABSTRACT

Project PROBE in cooperation with the State University College at Oneonta implemented a broad program to upgrade the economic literacy and teaching skills of classroom teachers throughout the project region. These activities included offering courses for college credit to both elementary and secondary teachers in which new ideas and concepts in the teaching of economics would be explored. Since it was found that individual teachers and entire school systems had no planned program for the teaching of economics in their social studies classes, a curriculum guide in economics education for grades kindergarten through eleven was developed. The 1969-70 academic year focused on the implementation and evaluation of those materials. Results indicated that students showed significant gains (at an .05 level of significance) in critical thinking skills through economic education. (Author/JB)

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AN ESEA TITLE III PROJECT FOR THE ADVANCEMENT OF CREATIVITY IN EDUCATION . . . IN COOPERATION WITH THE CATSKILL AREA SCHOOL STUDY COUNCIL, STATE UNIVERSITY COLLEGE AT ONEONTA, NEW YORK

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PROBE

ED 079242

FINAL PROGRAM REPORT

PROJECT PROBE

ONEONTA CONSOLIDATED SCHOOLS

ONEONTA, NEW YORK

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TABLE OF CONTENTS

		Page
	Title Page	
	Acknowledgments	iii
	List of Tables	vi
I.	STATISTICAL REPORT	1
II.	SUMMARY OF FINDINGS	3
III.	STATEMENT OF THE PROBLEM	6
IV.	ATTACKING THE PROBLEM	9
V.	ANALYZING THE DATA	13
VI.	FINDINGS AND CONCLUSIONS	17
VII.	RECOMMENDATIONS AND IMPLICATIONS	28

APPENDIX

A. EXPERIMENTAL GRADUATE COURSE - INNOVATIONS IN TEACHING ECONOMICS

B. SEMANTIC DIFFERENTIAL INVENTORY

C. SURVEY QUESTIONNAIRE

D. "t" TEST METHODOLOGY

E. TABA SOCIAL STUDIES INFERENCE TEST

F. DISSEMINATION OF CURRICULUM GUIDE

G. TEACHERS PARTICIPATING IN THE CURRICULUM EXPERIMENTATION PROJECT

LIST OF TABLES

Page

1. Means, Standard Deviations, Correlations and t tests between pre and post scores on the Social Studies Inference Test. 31

2. Means, Standard Deviations, and t tests between pre and post scores on the Watson-Glaser Critical Thinking Appraisal. 33

3. Average point change from pre-test to post-test on Semantic Differential Inventory for participating teachers in Inservice Economics Course. 34

4. Average point change from pre-test to post-test on Semantic Differential Inventory comparing participating and non-participating classroom teachers. 36

SUMMARY OF FINDINGS

The findings of this study need to be divided into two distinct parts. First are those findings dealing with changes in the student's critical thinking skills. This represented the primary thrust of the final year of the project, for it was through the evaluation of students that the project could make its best appraisal of the experimental curriculum materials that had evolved through two previous years of work.

The project staff is greatly encouraged by the analysis of the data collected through pre-testing and post-testing the students. To the best of our knowledge and research, no curriculum materials for developing student critical thinking skills through economics education has yet been developed for public school children. Materials from the New York State Education Department, The Joint Council for Economics Education, and many commercial publishers focus on content and concepts to be learned with little or no concern for the thinking or learning processes that are so crucial in the long-range development of children as independent learners. Our findings indicate that even within the short period of time that children were exposed to the project's curriculum materials, gains in student critical thinking skills did occur. And in 50% of the null hypotheses tested, students showed significant gains at least to the .05 level of confidence.

While many variables within the student's learning environment could not be adequately controlled by this study, i.e., individual teacher skills, teacher-learner

activities in other subject areas, and the educational philosophy of the teachers using the experimental materials, the project staff does feel that its curriculum materials are an important contribution to public school education. This is particularly important because the project's materials provide teachers with planning and implementation models through which improved economic literacy and critical thinking skill development can be integrated into the larger social studies program, instead of isolating or ignoring these key learning goals as has so often been the case in the past. Obviously, more protracted development and evaluation projects in this area should produce greater evidence to test the conclusions arrived at by this project.

The second part of this study dealt with the ways in which the activities and curriculum materials of this project acted to alter the attitudes of classroom teachers. The project was not attempting to determine if changes in teacher attitudes occurred at some statistical level of significance, but, whether the project's supportive activities for classroom teacher's efforts could cause changes in teacher attitudes that were moving toward greater consistency with the philosophy and methodology of the "New Social Studies" as characterized by the works of Edwin Fenton, Hilda Taba, and others.

In this area of research the project found that teachers, with whom it had worked intensively during the past year, showed much greater changes in attitudes than did a control group of teachers. The trends in attitudes for the

experimental group, although varying in intensity, showed changes in an acceptable direction for 75% of the areas tested. The control group of teachers showed attitude changes in an acceptable direction for 42% of the areas tested. As a result of this study the project staff believes that its activities during the past year in support of the experimental teacher group was an important factor in bringing about positive changes in teacher attitudes toward the teacher-learner process.

STATEMENT OF THE PROBLEM

During the first two years of this project, the staff, in cooperation with the State University College at Oneonta, and with teachers and administrators in school districts of the project region implemented a broad program to upgrade the economic literacy and teaching skills of classroom teachers throughout the project region. These activities included offering courses for college credit to both elementary and secondary teachers in which new ideas and concepts in the teaching of economics would be explored. In addition, the project staff conducted workshops at the college and on-site conferences and observations with teachers in the school districts. As a result of this two-year program, the project identified several problem areas that needed treatment if it were to improve the economic literacy of the students in our public schools.

The first problem identified was that individual teachers and entire school systems had no planned program for the teaching of economics in their social studies classes. The only guide available to them was that provided by the New York State Education Department's Curriculum Bureau. Those materials, while listing recommended content to be dealt with in the classroom, offered no specific objectives or strategies for classroom instruction that permitted teachers to define a developmental or long-range plan. The study of economics was being conducted in most of the schools with whom we dealt, but the approach was primarily an historical-institutional one with little relevance to the larger, more important, learning process.

The lack of knowledge of alternative methods of instruction on the part of the teachers caused both teachers and students to become quickly frustrated in the study of economics, and, particularly at the elementary level, resulted in a general avoidance of the discipline of economics in favor of greater emphasis on the geographic and historical studies.

A second problem dealt with the nature of materials presently available. The New York State Syllabus guides and many commercially produced materials tended to isolate the study of economics from the other disciplines in the social studies. Yet, the teachers below the 12th grade were looking for materials that would integrate the study of economics into the larger social studies program.

Finally, the project found that in order for any program to be implemented, teachers needed to feel that they were being supported and assisted in an on-going effort as opposed to occasional workshops, conferences, and on-site visits.

The problem, then, for the third year of this project has been to develop a planned program for the teaching of economics in grades K-11 that would relate to the New York State Syllabus Guides, but that would provide more specificity and guidance for the teachers daily classroom strategies. The program had to be capable of integration with the larger social studies program, although it could at times be historical and institutional in approach. It must focus on the significant attributes of the learning process that are being reflected in the "New Social Studies" projects throughout the nation. The planned materials had to be designed in such a way that teachers would find these useful and that desired changes in student learning

behavior could be measured. That is, the materials had to have a built-in accountability system so that objective evaluation could be implemented in order to provide data for on-going revision and development of classroom activities and ultimately the project materials.

Finally, a system for implementation and experimentation had to be devised in which teachers felt a strong commitment to the process and that their efforts were being supported and encouraged by a qualified professional staff. In addition to the improvement of economic literacy in the classrooms throughout our region, the project was interested in devising systems for dissemination of its materials throughout the state and nation. This dissemination had to be conducted in such a way that others in the field of economics education would provide the project with evaluations of the experimental materials.

ATTACKING THE PROBLEM

Having developed a curriculum guide in economics education for grades kindergarten through eleven during the summer of 1969, the 1969-70 academic year focused on the implementation and evaluation of those materials. Working with nine school districts and 125 teachers on a voluntary basis, the project depended largely on workshops, conferences, classroom observations, and written teacher evaluations to collect data upon which curriculum revision could be based during the summer of 1970. These curriculum revisions were made during the summer of 1970, and a second edition of the curriculum materials entitled, Economics Education: A Guide For New York Schools, was completed prior to the beginning of the 1970-71 academic year.

It was decided that evaluation of the revised materials would focus on two groups: professional educators and students. The group of professional educators was divided into four subcategories. The first group would be no more than 50 classroom teachers in the project's immediate region. This group would be involved with the actual implementation of the curriculum materials and support for their implementation would be provided on a regular basis by the project staff. The second group would also be classroom teachers within the project region. They would be provided with the curriculum materials from the project, but would receive no additional assistance in using the materials during the coming year. The third group would be classroom teachers from in and outside the project region. The curriculum materials would be demonstrated for them in regional meetings, but no additional assistance would be provided. The fourth

group would be state and national leaders in the area of economics and social studies education. Materials would be sent to them with a cover letter asking for their evaluation of those materials.

The student population to be evaluated was drawn from the classrooms of the teachers in the first group. These teachers were recruited to participate in an experimental course offered on a one-year basis by the State University College at Oneonta. This course entitled, Innovations in Teaching Economics, was a graduate level course in which teachers could gain graduate college credit. A description of the procedures and objectives of that course are included in Appendix A. In the spring of 1970, following the approval by the college of the experimental course, teachers in selected school districts in our region were offered the opportunity to enroll in the experimental course in the fall of 1970. Twenty-five elementary teachers in Greene Central School[1] and nine secondary teachers from Sidney, Laurens, and Oneonta Central Schools did enroll in the course. Their classroom students became the population for our evaluation of the curriculum materials developed during the summer of 1970.

The evaluation procedures focused in two directions: First, the project evaluated the changes in the critical thinking skills of the students exposed to our curriculum materials. In October, the project pre-tested students in grades 3-7 using the Taba Inference Test developed at San Francisco State College. For

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[1] In support of the implementation of this project's experimental program, Greene Central School, with the assistance of our project staff, applied for and received a $7500 ESEA Title II library grant in the spring of 1970. These funds were used to establish a supplementary economics resource center. These materials are presently housed at the Greene elementary campus and a catalog of the material is available on request from that school.

students in grades 8-10, the project used the Watson-Glaser Critical Thinking Appraisal Test. Both instruments were used to post-test students in April. No test could be found for students in grades one and two, and, since no teachers in kindergarten or grade eleven enrolled in the experimental course, we collected no data on students in grades kindergarten, one, two, and eleven. The population tested in grades 3-10 totalled 1031 students.

The second evaluation procedure focused on evaluating changes in attitudes of professional educators receiving and/or using the curriculum materials. The 35 classroom teachers involved in the experimental course participated in three major workshops in the beginning, middle, and end of the experimental course. In addition, all teachers met on a regular monthly schedule with the course instructor to discuss specific implementation problems with the curriculum. This group completed a Semantic Differential Inventory[2] at the beginning and at the end of the course.

The second group of classroom teachers were drawn from other schools within our region. These teachers all had worked with other project materials during the previous school year. In October, 1970, each teacher was offered a copy of the curriculum materials if they would first complete a Semantic Differential Inventory which was identical to that administered to the first group of teachers. This second group numbered 45 teachers. A post-Semantic Differential Inventory was sent to them for completion in the spring of 1971.

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[2] A copy of this Semantic Differential Inventory is included in Appendix B.

The third group of classroom teachers were identified through the Student Teaching Office at the State University College at Oneonta. These teachers acted during the year as cooperating teachers for student teachers sent out by the college. During the year, the project demonstrated the use of the curriculum materials for 450 teachers in 15 workshops. In April, 111 of these teachers, selected at random, were sent questionnaires[3] about their use of the curriculum since receiving it during the demonstration workshops.

The fourth group of professional educators were those directors of councils and centers for economics education located throughout the state and nation. A copy of the curriculum materials was mailed to each council and center — 97 in all. Included was a cover letter asking for their reactions to and evaluation of the materials. In April, 1971, a specific questionnaire was forwarded to a sampling of 60 of these councils and centers.

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[3] A copy of this questionnaire is included in Appendix C.

ANALYZING THE DATA (EVALUATION)

A. Hypotheses in terms of objectives:

1. The implementation of the curriculum materials in classrooms of grades K-11 of the four demonstration schools will cause no change in the participating student's critical thinking skills.

2. Classroom teachers, in the four demonstration schools using the project's curriculum materials throughout one school year, 1970-71, will show no change in attitudes toward the educational philosophy and methodology presented in the curriculum materials.

3. Participating teachers in the four demonstration schools will show no more positive attitudes toward the educational philosophy and methodology of the curriculum materials than non-participating teachers who received the materials in the project region.

4. Dissemination of the curriculum materials to teachers in and outside the project region through demonstration workshops will result in a secondary dissemination of those materials to other teachers and administrators within their schools.

5. Dissemination of the curriculum materials to individuals and agencies in education at the local, state, and national level will result in written encouragements to continue to develop and revise the materials developed by the project.

6. The inservice course, Economics 274: Innovations in Teaching Economics, conducted in the four demonstration schools to assist teachers in implementing the project's curriculum materials, will be judged by the teachers to have been of about the same value as other inservice courses in which they have participated.

7. Having developed and disseminated the first edition of the curriculum materials, the workshops, observations, school visitations, and test scores gathered during the 1969-70 school year will provide sufficient data to enable the project staff to revise the curriculum materials prior to the 1970-71 school year.

B. Techniques used to handle the data:

The 1031 students in grades 3-10 were pre-tested and post-tested in October and April, respectively. The student's scores were grouped by grade levels and analyzed for significant changes in critical thinking skills as follows:

Grades 3-7 were administered the Taba Social Studies Inference Test (SSIT)[1].

Grades 8-10 were administered the Watson-Glaser Critical Thinking Appraisal - YM Form[2].

For all these test scores the "t" Test Methodology outlined in Appendix D was applied.

The Semantic Differential Inventory, shown in Appendix B was the primary instrument used to gather data relating to hypotheses two, three, and six. Each of the 21 items on the inventory is divided into six rating sub-categories.

Each category runs a continuum from a very negative attitude to a very positive attitude. Upon completion of these items by a teacher, the project translated the teacher's check-marks into number scores using the following number designations:

Describe: NEW YORK STATE SYLLABUS GUIDES

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	7	6	5	4	3	2	1	Bad
Boring	1	2	3	4	5	6	7	Interesting
Worthless	1	2	3	4	5	6	7	Valuable
Child Centered	7	6	5	4	3	2	1	Teacher Centered
Harmful	1	2	3	4	5	6	7	Beneficial
Necessary	7	6	5	4	3	2	1	Unnecessary

[1] Hilda, Taba, Samuel Levine, and Freeman Elzey, Thinking in Elementary School Children, Cooperative Research Project No. 1574 (San Francisco: San Francisco State College, n.d.) pp. 187-192. (Photocopy from the United States Office of Education.)

[2] Goodwin Watson and Edward M. Glaser, Critical Thinking Appraisal, New York: Harcourt, Brace & World Inc., 1964.

Using this point system, values could be computed for each teacher's attitude on each of the 21 items. The most positive attitude score for each item is 42. The most negative attitude score for each item is 6. A score of 24, six check marks in the "neutral" column, represents the breaking point between positive and negative attitudes.

In attempting to determine the average attitude change for teachers referred to in hypotheses two and three, the project pre-tested in September, 1970, and post-tested in May, 1971. From these tests, 12 items were selected and analyzed. Three items, Recalling Facts, Studying the Past, Learning By Listening, were deemed to be inconsistent with the philosophy and methodology of the project's curriculum materials. The following nine items were deemed to be consistent with the philosophy and methodology of the project's curriculum materials.

Behavioral Objectives
Planning for Student Learning
Inquiry Teaching
Project PROBE Economics Education Guide for New York Schools
Learning By Doing
Studying the Present
Problem Solving
Case Study Approach to Teaching
Studying the Future

The point change on each of the 12 items for each teacher between the pre-test and post-test was determined and recorded. All point changes on each item were then added and divided by the number of teachers in each group to determine the average point change for the group. The average point change on each of the 12 items was then compared between the teachers in group one (teachers participating in the experimental inservice course) and the teachers in group two (teachers from the region not participating in the experimental course). This comparison would permit the project staff to detect trends — positive or

negative — in teacher attitudes and to determine the difference in average amount of point change for each group and between each group.

Data for hypothesis six was collected by using two additional items from the Semantic Differential Inventory completed by the teachers in group one only. The two items used were: Inservice Courses and This Economics Inservice Course. By comparing the pre-post scores on these items, the project staff could determine changes in teacher attitudes about the experimental inservice course and be able to compare teachers' attitudes toward that course with attitudes toward other inservice courses in which these teachers had participated during their professional careers.

FINDINGS AND CONCLUSIONS

I. Social Studies Inference Test (SSIT) (See Appendix E)

Students in grades three, four, five, six, and seven were given the S.S.I.T. as pre and post-test experiences. The results of these testing experiences are reported in Table 1 of this report.

The S.S.I.T. is designed to measure several aspects of the process involved in drawing inferences from data which are new to students. The test contains four sub-tests as follows:

1) Inference - the ability to draw inferences or "to go beyond that which is given."

2) Discrimination - the ability to discriminate between the various items given in the test problems.

3) Caution - the tendency to avoid taking a risk.

4) Over-Generalization - the tendency toward over-inclusion and stereotyping.

To facilitate an analysis of Table 1, one can proceed horizontally in the table to study the various sub-tests, and vertically to study the performances by grade.

A. Inference

The fourth, fifth, and sixth grade showed significant gains from pre to post-test, each reaching *t* values that cause one to reject the null hypothesis at the .01 level of confidence. The seventh grade's mean change was in the right direction, but was not significant. The small sample of third graders didn't seem to show change, and seemed, rather to lose ground in drawing inferences. Actually, this is probably more a result of sample size than of the effect of the project.

B. Discrimination

All grades except grade three showed positive change, but only the fourth and sixth grade changes were statistically significant. Once again, grade three's sample size precluded any valid results. It does seem interesting that the two other grades showed gains from pre-to-post test.

C. Caution

Project goals would seem to call for a reduction in caution scores, and grades five and six showed this trend and exhibited significant reductions. Grades three, four, and seven seemed to go toward more caution. Once again, grade three went against the expected trend and even gained significance. Grades four and seven showed gains in caution scores, but these could have occurred by chance. The fifth and sixth graders seemed to have benefitted most and were significantly less cautious.

D. Over-Generalization

As in the caution scores, project goals might be more accepting of a reduction in scores in over-generalization. All five grades showed this desirable reduction, with grades four and five showing significant reductions.

Analyzing the data by sub-tests, as presented above, one might conclude that at least acceptable success was attained in all but the sub-test on caution. Here the success was mixed, with grades four and seven tending to depart from project goals, however slightly. The general conclusion is that the curriculum materials to which students were exposed were successful in aiding students

to make inferences, discriminate between items, avoid over-generalizations, and had mixed success at reducing caution scores.

E. Third Grade

As stated earlier, the third grade sample was of such a limited nature as to preclude any analysis of the data.

F. Fourth Grade

The fourth graders responded both on the plus side of the project goals and on the negative side, too. On the plus side were significant gains in inference and discrimination, and significant reductions in scores in over-generalization. Their only disappointment was a gain in caution scores when project goals dictated a loss, but this change from pre-test mean to post-test mean could have occurred by chance.

G. Fifth Grade

This grade gained when it should have and lost when it should have also, and all four sub-test t values were significant. In terms of t values and project goals, the fifth grade was the most successful grade taking the S.S.I.T.

H. Sixth Grade

All of their changes were in the directions desired, and only one score, over-generalization, failed to reach significance.

I. Seventh Grade

The direction of change was correct for all but the sub-

test on caution, but all four changes failed to reach significance. This failure to attain significance could be due to the inability of the S.S.I.T. to discriminate at the seventh grade level. Although the S.S.I.T. has been used with some success at the seventh grade level[1] it was originally designed to be used in grades 3-6.

Thus, from a grade-by-grade analysis of S.S.I.T. data, fifth grade emerges as the most successful, followed by sixth, fourth, seventh, and third in that order

II. The Watson-Glaser Critical Thinking Appraisal

The Watson-Glaser Critical Thinking Appraisal consists of a series of test exercises which require the application of some of the important abilities involved in critical thinking. It contains 100 items that can be completed in about 50 minutes by most persons who have the equivalent of a ninth grade education. It contains five sub-tests as follows:

1) Inference (twenty items) samples ability to discriminate among degrees of truth or falsity of inferences drawn from given data.

2) Recognition of Assumptions (sixteen items) samples ability to recognize unstated assumptions or pre-suppositions which are taken for granted in given statements or assertions.

3) Deduction (twenty-five items) samples ability to reason deductively from given statements or premises; to recognize the relations of implication between propositions; to determine whether what may seem to be an implication or a necessary inference from given premises is indeed such.

4) Interpretation (twenty-four items) samples ability to weigh evidence and to distinguish between:

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[1] Whitehill, William E., Jr. Evaluation of Thinking In A Seventh Grade Social Studies Class. Unpublished Doctoral Dissertation. Washington State University, 1971.

a) generalizations from given data that are not warranted beyond a reasonable doubt, and

b) generalizations which, although not absolutely certain or necessary, do seem to be warranted beyond a reasonable doubt.

5) Evaluation of Arguments (fifteen items) samples ability to distinguish between arguments which are strong and relevant and those which are weak or irrelevant to a particular question at issue.

The Watson-Glaser appraisal was given to grades eight, nine, and ten. Project leaders knew in advance that the Watson-Glaser appraisal was not normed on eighth graders, but an examination of the appraisal disclosed its applicability to project goals and seemed to establish a valid reason for administering it to the three grades.

Watson-Glaser appraisal results are presented in Table 2. Reading the table horizontally gives a picture of the data by sub-tests, and vertically by grades. All changes, to meet project goals should be positive.

A. Inference

All three grades showed positive gain, with grades eight and ten exhibiting significant gain in inference scores.

B. Recognition of Assumptions

All the changes were in the right direction, but none of the grades showed a significant change.

C. Deductions

Again, all changes were correctly positive, and grades eight and ten showed significant gains in scores in deduction.

D. Interpretation

Tenth grade seemed to benefit most as shown by this sub-test, showing a significant gain from pre-to-post mean.

The ninth grade showed virtually no change, and the eighth grade showed a significant ($P. < .05$) loss in interpretation scores.

E. Evaluation of Arguments

Once again tenth grade seemed to be the most successful in meeting project goals, as their mean change attained significance. Ninth grade showed a gain which is desirable, but that gain was not statistically significant. Eighth grade showed virtually no change from pre-to-post test.

F. Total Test

All three grades made gains, with grades eight and ten showing changes that were statistically significant.

In all, a sub-test comparison would seem to indicate that the project was successful in all five areas, with a slight qualification in the area sampled by the sub-test on interpretation.

G. Eighth Grade

Eighth graders were successful in exhibiting significant changes in inference deductions, and total test scores. They showed positive (and desirable) changes in recognition of assumptions and evaluation of arguments, but these failed to reach significance. They did show a significant loss in the sub-test on interpretation.

H. Ninth Grade

An interesting phenomena - five of the six scores were in the proper direction, but none of these were significant. The ninth graders also showed virtually no change in the sub-test of interpretation.

I. Tenth Grade

In terms of project goals, tenth grade was the most successful. All of the changes were in the proper direction and only the change in recognition of assumptions failed to reach significance.

In summary, eight grades were given pre-tests and post-tests to assess change in critical thinking skills.

One group — Grades 3, 4, 5, 6, and 7 — were given the Social Studies Inference Tests and twenty null hypotheses were tested (four sub-tests and five grades). Of these twenty null hypotheses, ten were rejected and ten were accepted. The direction of change was correct in sixteen of the twenty comparisons. Thus, we must conclude that for the group taking the S.S.I.T., there was change and at least half of the change was statistically significant. Only 20% of the change was not in the direction of project goals.

The second group — grades 8, 9, and 10 — were given the Watson-Glaser Critical Thinking Appraisal, and eighteen null hypotheses were tested, with nine of the eighteen attaining statistical significance. Sixteen of the eighteen changes were in the correct direction. As with the S.S.I.T. group, we must conclude that there was change and at least half of the change was statistically significant.

The second hypotheses dealt with changes in attitudes toward the educational philosophy and methodology of the project's curriculum materials. Specifically, this hypothesis refers to the four following statements which have been excerpted directly from the introductory pages of, Economics Education: A Guide For New York Schools:

1. . . . the teacher must plan. Planning for student learning is the central purpose of the teacher. This planning involves defining goals and outlining strategies for student attainment of those goals.

2. . . . our public schools should concentrate more on how to learn and less on memorizing facts.

3. Students should spend less time storing information about man's history and more time exploring the conditions of the present and speculating about the future.

4. . . . developing skills of how to learn should revolve around the use of models of inquiry. Learning cannot be a helter-skelter process. Learning results from seeing problems, asking questions and then seeking solutions or answers through the process of inquiry.

In order to evaluate changes in teacher attitudes related to the above philosophy, items from the Semantic Differential Inventory administered to the classroom teachers, known here as the participating teachers, were selected and analyzed. Twelve items from the Inventory were selected. Three of these: Recalling Facts, Studying the Past, and Learning by Listening, were felt to be the antithesis of the project's philosophy. A decrease in teacher's scores on these three items from the pre-to-post inventory would be viewed as a positive change in attitude by the project. An increase on the other nine items would be viewed as a positive change in attitude by the project. Our interest here was not in determining the significance of change, but attempting to define the trend and direction of change, if any. These changes have been graphed and are included in Table 3 of this report.

To summarize the findings, in 10 of the 12 attitude areas the participating teachers did move in a direction that the project staff feels indicates increased support for the philosophy of the guide by the teachers. In the first three items, teachers scored lower on the post inventory than on the pre inventory.

In the nine positive items, teachers showed a more positive attitude on the post inventory than on the pre inventory in every case except those dealing with Behavioral Objectives and Planning for Student Learning.

The third hypothesis dealt with a comparison of attitude changes between the participating teachers and teachers in the region with whom the project had not worked during the year, but who had received project curriculum materials. This second group also completed the Semantic Differential Inventory on a pre-post basis. The comparison of attitudes between these two groups is shown in Table 4.

Using the same selected items as were used for the second hypothesis, the project found that with both the negative and positive attitude changes the participating teachers showed greater change in 9 of the 12 items. The non-participating teachers showed greater gain in attitudes toward Learning By Listening, Behavioral Objectives, and Planning for Student Learning. As with the previous hypothesis about teacher attitudes, the project was attempting to determine trends and not significant changes. Of the 45 non-participating classroom teachers pre-tested in October, only 23 returned the post-inventory in May.

Hypothesis four dealt with dissemination of the curriculum materials to the third group of teachers. This dissemination through demonstrations was followed by a questionnaire to a sample of 111 of those teachers. Although all returned questionnaires indicated that teachers had shared the materials with others in their school district, only 23 of the questionnaires were returned. Therefore, we feel there is insufficient data

upon which to accept or reject this hypothesis.

Hypothesis five dealt with the dissemination of curriculum materials to individuals and agencies in education statewide and nationally. As with the previous hypothesis, the returning questionnaires were insufficient for the project to draw a conclusion. Of 60 questionnaires sent out in April, only nine were returned.

For the sixth hypothesis, the project analyzed and compared two additional areas from the Semantic Differential Inventory given to the participating teachers. Here the project compared teacher attitudes as rated in the following two topics:

1. Describe This Economics Inservice Course.
2. Describe Inservice Courses.

In analyzing the data, the project found that on the pre-test the participating teachers rated "Inservice Courses" higher than they did "This Economics Inservice Course." With the highest possible average score being 42 points, the teachers rated "Inservice Courses" at 32.29, and "This Economics Inservice Course" at 29.16. On the post-test, the participating teachers rated "Inservice Courses" slightly lower at 31.87. At the same time, they rated "This Economics Inservice Course" at an average of 35.13 points. The average point change on "This Economics Inservice Course" from pre-to-post test was 5.97. When comparing the pre and post-test scores between these two items we find that, while on the pre-test "This Economics Inservice Course" ranked an average of 3.13 points lower. On the post-test it ranked an average of 3.26 points higher. The net average gain for "This Economics Inservice Course" between pre-test and post-test over "Inservice Courses" was 6.39 points.

Using these scores and written evaluations, the project rejects the sixth hypothesis because we believe that teachers found this economics inservice course to be of much greater value than other courses in which they have participated.

Evidence for the final hypothesis can be found in the fact that the project staff did develop a revised curriculum guide based upon evidence collected during the 1969-70 school year. The resultant product from that collected evidence is entitled, Economics Education: A Guide For New York Schools.

RECOMMENDATIONS AND IMPLICATIONS

1. The curriculum guide, Economics Education: A Guide For New York Schools, should continue to be revised and developed. This three-year study presents strong evidence that the discipline of economics offers an excellent vehicle through which student critical thinking skills can be developed while, at the same time, improving the economic literacy of both students and teachers. Yet, this same evidence makes it clear that three years is an insufficient amount of time to complete such research and experimentation. This project was able to develop two editions of these economics materials, an original edition and one revision. As a practical matter, these materials should undergo at least two more revisions.

2. The findings of this project should be made available to the Curriculum Bureau of the New York State Education Department and the Joint Council for Economic Education. Prior to the project's final analysis of its data, the staff made several contacts, both written and in person, with both of these agencies. Much to our disappointment, neither agency would provide our project with any of their reactions or evaluations. Now that a final analysis of the data has been made, our project staff believes these agencies should be made aware of the implications for future research and development.

3. One of the most difficult, yet crucial activities of this project has been to develop and maintain local teacher and administrator support for the experimental efforts of the project. The lapse of time that occurred between the

project's study, "An Inventory of the Needs of Teachers of Economics in the Catskill Area Schools" in 1967 and now, makes it extremely difficult to maintain a feeling of ownership on the part of the educators whom the project is attempting to serve. The task here seems to be a need to build a degree of local school involvement while still maintaining some project independence. In this way, the project can explore and incorporate new ideas in education, while, at the same time, involving local school personnel in the product development process.

4. Future curriculum development and experimentation projects of this nature need to be very cognizant of the educational philosophies of the teachers with whom it plans to work. Although the statistical data provides no direct evidence, this project found that teachers' educational philosophies were a crucial variable in implementing the curriculum materials. In several instances, the teachers found it difficult to modify their planning and classroom strategies in a way that would make them more compatible with the philosophy inherent in the project's curriculum materials. On the other hand, teachers who had, prior to our project, adopted an educational philosophy similar to that of our materials, found the materials easier to use and actually provided them with a viable alternative model for planning and carrying out classroom experiences.

5. Although this project carried on extensive inservice support, activities for teachers using the experimental curriculum materials, future replication of this work should consider

some modifications. This project assumed, for example, that experienced classroom teachers had a working knowledge of and skill in using the inquiry process as a mode of learning. That turned out to be a false assumption that was not uncovered until actual curriculum implementation had begun. In the future, implementation and experimentation efforts should be preceded by a two or three week workshop in which the participating teachers explore the philosophical underpinnings of the project and gain skill and confidence in using the planned materials.

6. Finally, there may be long-range affects on student critical thinking skills that this project has not been able to measure. In contrast with lower levels of cognition, the development of higher levels of critical thinking skills is a long-range developmental process. These latter skills are developed and refined only as the student experiences success with them. The implications for this are that the strength of student critical thinking skills may become more obvious after two or more years of exploration and reinforcement. The limited time factor of this study did not permit this project to make an evaluation of these gains over such an extended period of time.

TABLE 1

MEANS, STANDARD DEVIATIONS, CORRELATIONS AND *t* TESTS BETWEEN PRE AND POST SCORES ON THE SOCIAL STUDIES INFERENCE TEST

		3rd Grade[1] (N=16)				4th Grade (N=103)				5th Grade (N=120)			
		PRE	POST	*r*	*t*	PRE	POST	*r*	*t*	PRE	POST	*r*	*t*
INFERENCE	MEAN	5.8	4.9	.50	1.67 n/s	15.81	17.47	.44	3.25**	14.05	16.58	.23	5.50**
	S.D.	2.08	2.09			4.70	5.02			4.15	4.45		
DISC.	MEAN	3.19	3.06	.06	0.22 n/s	5.48	7.13	.30	6.88**	6.38	6.66	.40	1.22 n/s
	S.D.	2.04	1.03			1.83	2.30			2.32	2.31		
CAUTION	MEAN	4.18	5.50	.50	2.32*	12.34	12.96	.26	1.05 n/s	15.80	14.57	.11	2.32*
	S.D.	2.04	2.37			4.82	4.98			4.33	4.63		
OVER GENER.	MEAN	4.06	3.88	.51	0.53 n/s	8.04	7.37	.20	1.97*	6.83	7.55	.30	2.57*
	S.D.	1.46	1.16			2.65	2.77			2.64	2.68		

*P<.05
**P<.01

[1]Shortened form of test administered to third grade

TABLE 1 (Cont.)

MEANS, STANDARD DEVIATIONS, CORRELATIONS
AND t TESTS BETWEEN PRE AND POST SCORES
ON THE SOCIAL STUDIES INFERENCE TEST

		6th Grade (N=112)				7th Grade (N=125)			
		PRE	POST	r	t	PRE	POST	r	t
INFERENCE	MEAN	15.10	19.07	.42	7.63**	17.54	17.82	.60	0.64 n/s
	S.D.	5.11	5.4			4.92	5.87		
DISC.	MEAN	6.39	7.81	.38	5.91**	8.22	8.53	.21	1.34 n/s
	S.D.	2.32	2.34			1.85	2.21		
CAUTION	MEAN	16.29	13.07	.30	5.28**	15.01	15.16	.54	0.33 n/s
	S.D.	5.96	4.83			5.15	5.30		
OVER GENER	MEAN	6.63	6.34	.37	1.04 n/s	6.34	6.16	.41	0.64 n/s
	S.D.	2.74	2.51			2.66	2.99		

*P<.05
**P<.01

TABLE 2

MEANS, STANDARD DEVIATIONS, AND t TESTS BETWEEN
PRE AND POST SCORES ON THE
WATSON-GLASER CRITICAL THINKING APPRAISAL

		8th Grade				9th Grade				10th Grade			
		PRE	POST	r	t	PRE	POST	r	t	PRE	POST	r	t
INFERENCE	MEAN	8.0	8.8	.54	4.00**	9.8	10.2	.53	1.66 n/s	9.7	10.8	.57	5.45**
	S.D.	3.14	3.26			2.96	2.79			3.04	2.71		
	N	243				136				184			
RECOGNITION OF ASSUMPTIONS	MEAN	10.2	10.6	.22	1.83 n/s	16.4	16.6	.40	0.69 n/s	10.9	11.4	.40	1.92 n/s
	S.D.	2.70	2.75			2.96	3.21			2.96	3.92		
	N	243				137				184			
DEDUCTIONS	MEAN	15.0	15.9	.63	4.93**	10.3	10.5	.24	0.36 n/s	16.7	17.4	.46	3.22**
	S.D.	4.11	3.12			3.48	3.36			3.17	2.88		
	N.	243				136				184			
INTERPRETATION	MEAN	15.2	14.6	.86	2.28*	16.74	16.72	.52	0.09 n/s	16.9	17.9	.51	4.48**
	S.D.	3.22	6.01			3.35	3.10			3.49	2.73		
	N	242				137				180			
EVALUATION OF ARGUMENTS	MEAN	8.8	8.7	.17	0.49 n/s	8.8	9.2	.25	1.66 n/s	9.0	9.7	.37	3.35**
	S.D.	2.44	2.48			2.41	2.19			2.86	1.92		
	N	241				137				181			
TOTAL TEST	MEAN	56.8	59.3	.52	3.97**	61.8	63.0	.57	1.72 n/s	63.0	67.0	.56	6.55**
	S.D.	10.59	9.93			8.22	8.55			9.09	8.53		
	N.	246				137				185			

*P<.05
**P<.01

TABLE 3

Average Point Change From Pretest to Post-test on
Semantic Differential Inventory
For Participating Teachers in Inservice Economics Course

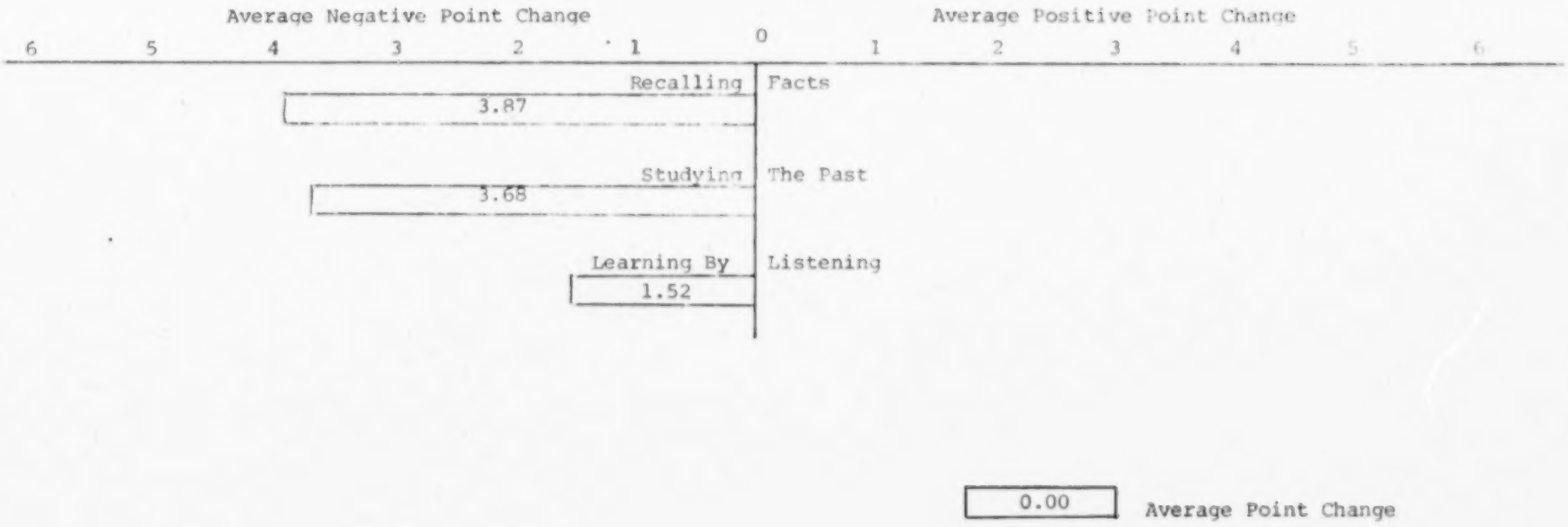


TABLE 3 (Cont.)

Average Point Change From Pretest to Post-test on
Semantic Differential Inventory
For Participating Teachers in Inservice Economics Course

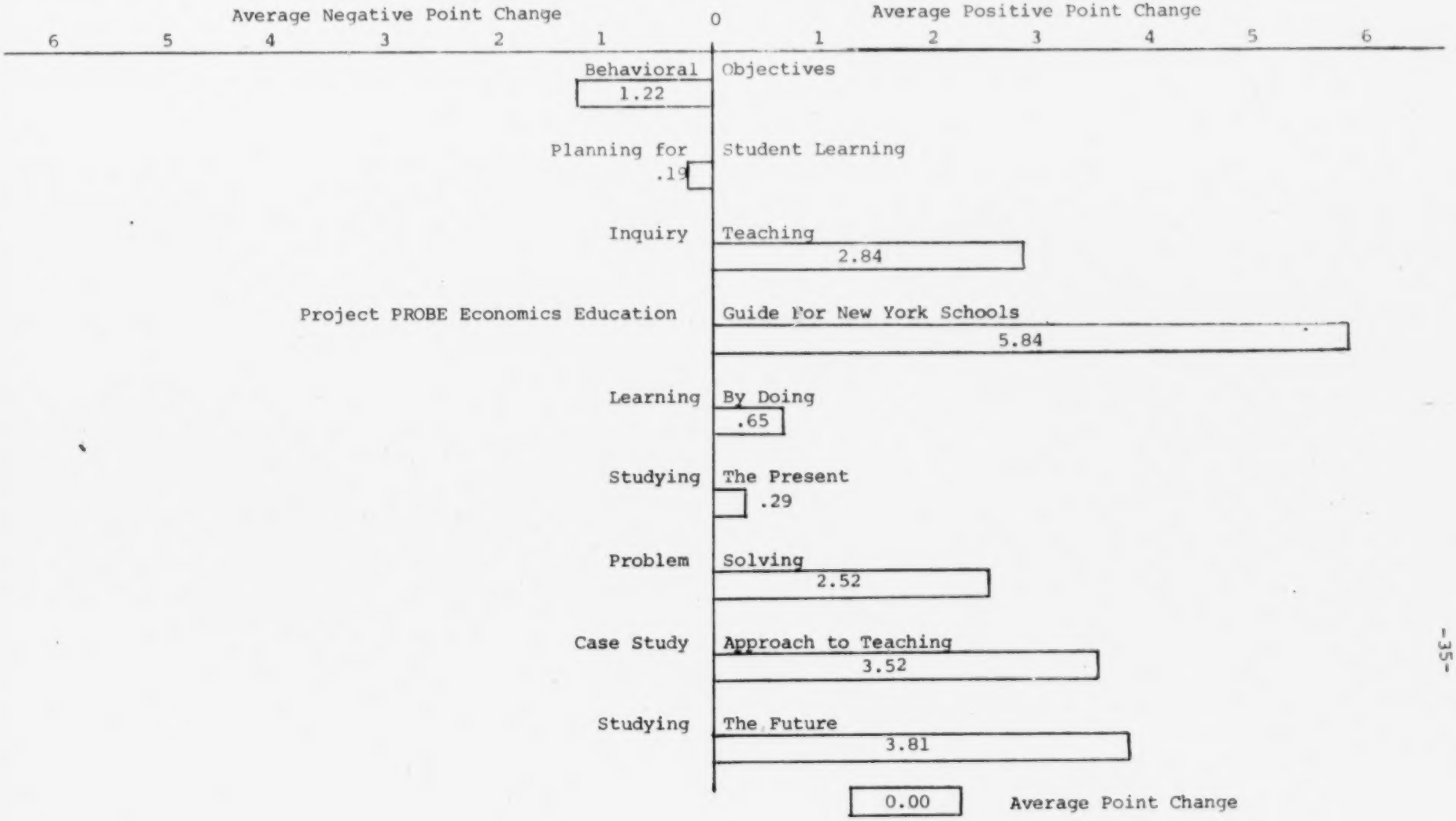
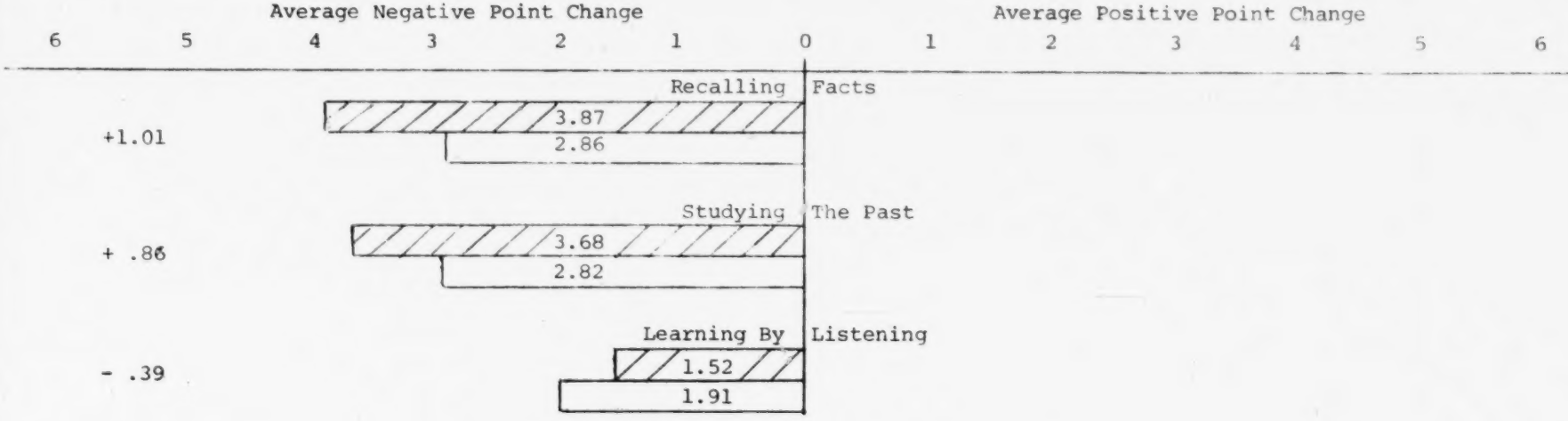


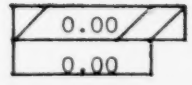
TABLE 4

Average Point Change From Pretest to Post-test on
Semantic Differential Inventory
Comparing Participating and Non-Participating Classroom Teachers



\+ = Greater Attitude Change for Participating Teachers

\- = Greater Attitude Change for Non-Participating Teachers

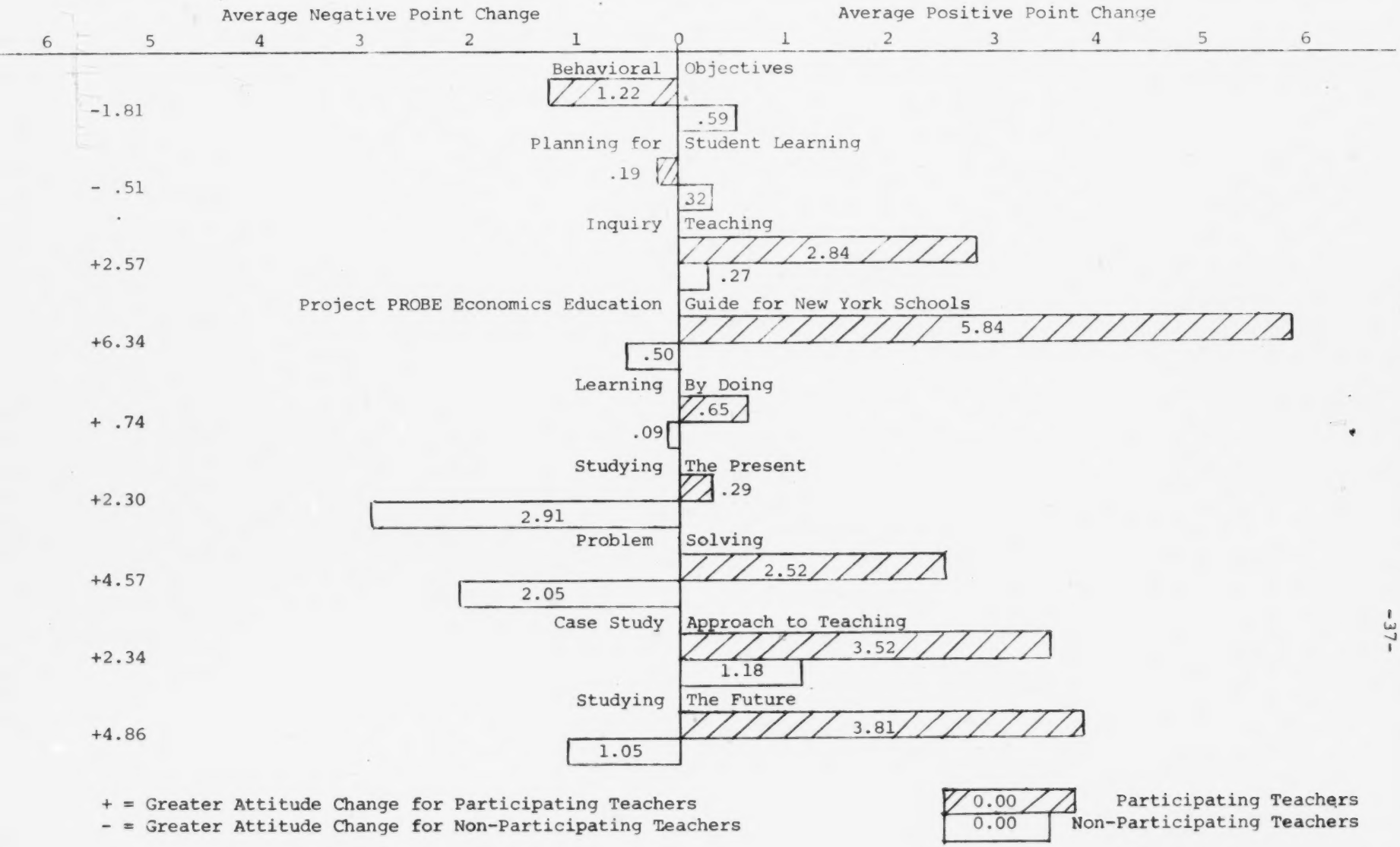


Participating Teachers

Non-Participating Teachers

TABLE 4 (Cont.)

Average Point Change From Pretest to Post-test on
Semantic Differential Inventory
Comparing Participating and Non-Participating Classroom Teachers



APPENDIX A

Experimental Graduate Course
Innovations in Teaching Economics

Economics Education: A Graduate Course

Economics Education-274 3-4 semester hours

Innovation in Teaching Economics

Course Content

A year long study of economics education in the elementary and secondary school classroom by working with an experimental curriculum. Students will examine and implement curriculum developed at the State University College at Oneonta and demonstrate the degree of effectiveness of this and supporting methods and materials. Emphasis will be placed on economic education in rural life where applicable and how these principles may be developed in the classroom. Curriculum materials produced throughout the nation will be examined and used with classes when appropriate. Students are expected to be full-time classroom teachers and will be admitted to the course only by permission of the instructor and the Chairman of the Economics Department. All course requirements can be met by students in their own school buildings with the exception of two workshops on the college campus during the year. The course will carry three semester hours of credit with a fourth hour available to students completing an additional project that is approved by the instructor and student jointly.

Course requirements:

1. Participation in three workshops:

   a. One three-hour meeting at the beginning of the year on the college campus or at the teacher's school at which time the experimental curriculum, Economic Education: A Guide for Rural New York Schools, will be introduced and the direction of the course will be defined along with course requirements and required readings.

   b. Two six-hour meetings at the college during January and June in which all teachers participate. These meetings will include discussions of progress experienced at that stage, future direction of course, and final evaluation of the course and the experimental curriculum.

2. Classroom teachers will meet at least one hour each month from September-June with the instructor concerning implementation of the curriculum and to discuss the progress of the classroom teacher in the course.

3. Classroom teachers will attempt implementation of and innovation with curriculum guide, and supportive materials supplied by the instructor.

4. Classroom teachers will complete a project connected with economic education at the teachers' grade assignment. This could include video taped lessons, preparation of bibliographies about local economic studies, etc. This applies only to people taking the course for 4 hrs.

5. Classroom teachers will complete pre and post tests and questionnaires in economic knowledge and attitudes.

6. Classroom teachers will administer pre and post tests and questionnaires to their classes as supplied by the instructor.

Prerequisites:

1. Full-time classroom teacher in grades kindergarten-11.

2. Permission of instructor and Economics Department Chairman.

3. Approval from the administration of the teacher's school to permit the kind of instructor-teacher contact described herein.

Course credit:

1. Class may be taken for undergraduate or graduate credit in Economics through SUCO.

2. Class may be taken for in-service credit, and upon successful completion of course requirements, Project PROBE will recommend to the teacher's administration that salary credit be given, if that is that school district's policy.

Goals for the course:

1. To provide close and continued support of classroom teachers to assist them in improving their teaching of economics at their assigned grade level by conducting workshops at the classroom teacher's school and on the college campus, and by regular monthly conferences between the classroom teacher and the instructor.

2. To demonstrate operative methods of presenting concepts and principles of economics at all grade levels by providing a curriculum guide in economics that defines behavioral objectives, content, teaching strategies,

evaluation techniques, and appropriate supportive materials.

3. To demonstrate operative methods of presenting concepts and principles of economics at all grade levels by demonstration lessons, holding workshops, and individual conferences in which these experiences will represent the main focus of attention.

4. To provide, through the Economics Department's Specialist in Economic Education, the guidance in the identification of methods to implement the economics content recommendations of the New York State Syllabus' Guides in Kindergarten-Grade 11.

5. To assist classroom teachers in the identification and use of local, state, and national sources of material for supporting classroom strategies by obtaining preview copies of materials, evaluating materials, and disseminating this information.

6. To evaluate classroom teacher's attitudes concerning the viability and quality of a Directed Study In-Service course conducted in close proximity to the classroom environment as evidenced by a questionnaire at the close of the course.

General Objectives:

Objectives for teachers participating in curriculum evaluation activities during 1970-71 school year.

Teachers who have participated in Project PROBE's curriculum evaluation activities will:

1. demonstrate skill in implementing instructional strategies in economic education as evidenced by observations and conferences conducted by the project staff.

2. demonstrate increased knowledge of economic concepts and principles as a result of using Project PROBE materials as shown by pre and post testing using S.R.A. Test of Economic Understanding.

3. demonstrate changes in attitude toward economic values as a result of using Project PROBE materials as shown by pre and post questionnaires using Economic Attitude Scale.

4. demonstrate the ability to plan instructional strategies for presentation of economic concepts and principles through the development of a media project, written unit, or a preplanned and video-taped classroom lesson as evidenced in the evaluation of the developed materials and teacher-instructor conferences.

Objectives for students participating in curriculum evaluation activities during 1970-71 school year.

Students who have participated in Project PROBE's curriculum evaluation activities will:

1. demonstrate an increased skill in identifying and applying economic concepts and principles as evidenced in pre and post tests of curriculum topics to which they have been exposed in Economic Education: A Guide for Rural New York Schools, observations by the teachers, and student work - oral and written.

2. demonstrate the increased skill to synthesize and evaluate economic ideas as evidenced by pre and post tests of curriculum topics studied, observation by the teacher, and student's work - oral and written.

3. demonstrate an increased awareness of localized economic institutions, organizations, and problems as evidenced by pre and post tests of curriculum topics studied, and student's work - oral and written.

The establishment of this course offers advantages to:

1. The classroom teacher (as student):

   a. professional improvement.
   b. close support of a curriculum specialist in the field of economic education,
   c. opportunity to obtain prepared classroom materials designed to be used with the New York State Syllabus Guides.
   d. opportunity to gain college credit "on-the-job."
   e. classes held in the teacher's school during unscheduled periods or immediately after school for limited periods.

2. The school districts participating:

   a. professional improvement of school staff.
   b. opportunity for cooperation with college staff.
   c. supply of useful classroom materials (some on a temporary basis) without cost.
   d. assistance in improving part of the social studies program for students.

3. The Economics Department and Center for Economic Education:

   a. obtaining teachers that will be more fully committed to the curriculum evaluation efforts of the Center for Economic Education.
   b. obtaining public school classrooms for evaluation purposes with respect to our curriculum guide.

c. well-defined target population for evaluation efforts.
d. opportunity to explore the value and application of directed study in-service courses and determine their future potential as part of the Center for Economic Education.

APPENDIX B

Semantic Differential Inventory

School_____ Grade Level_____

Name_____ Birthdate Month _____ (in) (numbers) Day ____

ATTITUDE INVENTORY

This scale is a method of measuring what words mean to you. There are no right or wrong answers, so simply indicate your first impressions or feelings about each word or phrase.

At the bottom of the page is a completed example of what you will be asked to do. Please refer to it as we read these instructions.

There are seven blanks. The position of each blank can be described by the term directly above it.

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	____	_____	_____	_____	_____	_____	____	Bad

At the top of the example is the word "HOMEWORK". This is <u>not any particular</u> homework. Whatever "HOMEWORK" means to you is what you are to think about.

Look at the first word pair:

Good	X	_____	_____	_____	_____	_____	____	Bad

The idea of HOMEWORK was very good to me so I checked the blank under "Very" ____, substituting in this case the word "Good" for the dash.

<u>Make each item a separate decision</u>. Be sure and put your check mark on the line provided.

Look over the example again to be sure you understand and then go on to the rest of the scale.

EXAMPLE

Describe: HOMEWORK

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	X	_____	_____	_____	_____	_____	____	Bad
Boring	____	_____	_____	_____	X	_____	____	Interesting
Worthless	____	_____	_____	_____	_____	_____	X	Valuable
Child Centered	____	_____	_____	_____	_____	_____	X	Teacher Centered
Harmful	____	_____	_____	_____	_____	_____	X	Beneficial
Necessary	X	_____	_____	_____	_____	_____	____	Unnecessary

Describe: NEW YORK STATE SYLLABUS GUIDES

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	___	___	___	___	___	___	___	Bad
Boring	___	___	___	___	___	___	___	Interesting
Worthless	___	___	___	___	___	___	___	Valuable
Child Centered	___	___	___	___	___	___	___	Teacher Centered
Harmful	___	___	___	___	___	___	___	Beneficial
Necessary	___	___	___	___	___	___	___	Unnecessary

Describe: RECALLING FACTS

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	___	___	___	___	___	___	___	Bad
Boring	___	___	___	___	___	___	___	Interesting
Worthless	___	___	___	___	___	___	___	Valuable
Child Centered	___	___	___	___	___	___	___	Teacher Centered
Harmful	___	___	___	___	___	___	___	Beneficial
Necessary	___	___	___	___	___	___	___	Unnecessary

Describe: STUDYING THE PAST

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	___	___	___	___	___	___	___	Bad
Boring	___	___	___	___	___	___	___	Interesting
Worthless	___	___	___	___	___	___	___	Valuable
Child Centered	___	___	___	___	___	___	___	Teacher Centered
Harmful	___	___	___	___	___	___	___	Beneficial
Necessary	___	___	___	___	___	___	___	Unnecessary

Describe: PROJECT PROBE

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	___	___	___	___	___	___	___	Bad
Boring	___	___	___	___	___	___	___	Interesting
Worthless	___	___	___	___	___	___	___	Valuable
Child Centered	___	___	___	___	___	___	___	Teacher Centered
Harmful	___	___	___	___	___	___	___	Beneficial
Necessary	___	___	___	___	___	___	___	Unnecessary

Describe: BEHAVIORAL OBJECTIVES

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	___	___	___	___	___	___	___	Bad
Boring	___	___	___	___	___	___	___	Interesting
Worthless	___	___	___	___	___	___	___	Valuable
Child Centered	___	___	___	___	___	___	___	Teacher Centered
Harmful	___	___	___	___	___	___	___	Beneficial
Necessary	___	___	___	___	___	___	___	Unnecessary

Describe: LEARNING BY LISTENING

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	___	___	___	___	___	___	___	Bad
Boring	___	___	___	___	___	___	___	Interesting
Worthless	___	___	___	___	___	___	___	Valuable
Child Centered	___	___	___	___	___	___	___	Teacher Centered
Harmful	___	___	___	___	___	___	___	Beneficial
Necessary	___	___	___	___	___	___	___	Unnecessary

Describe: CURRICULUM GUIDES

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	___	___	___	___	___	___	___	Bad
Boring	___	___	___	___	___	___	___	Interesting
Worthless	___	___	___	___	___	___	___	Valuable
Child Centered	___	___	___	___	___	___	___	Teacher Centered
Harmful	___	___	___	___	___	___	___	Beneficial
Necessary	___	___	___	___	___	___	___	Unnecessary

Describe: INSERVICE COURSES

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	___	___	___	___	___	___	___	Bad
Boring	___	___	___	___	___	___	___	Interesting
Worthless	___	___	___	___	___	___	___	Valuable
Child Centered	___	___	___	___	___	___	___	Teacher Centered
Harmful	___	___	___	___	___	___	___	Beneficial
Necessary	___	___	___	___	___	___	___	Unnecessary

Describe: INDUCTIVE TEACHING

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	___	___	___	___	___	___	___	Bad
Boring	___	___	___	___	___	___	___	Interesting
Worthless	___	___	___	___	___	___	___	Valuable
Child Centered	___	___	___	___	___	___	___	Teacher Centered
Harmful	___	___	___	___	___	___	___	Beneficial
Necessary	___	___	___	___	___	___	___	Unnecessary

Describe: PLANNING FOR STUDENT LEARNING

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	___	___	___	___	___	___	___	Bad
Boring	___	___	___	___	___	___	___	Interesting
Worthless	___	___	___	___	___	___	___	Valuable
Child Centered	___	___	___	___	___	___	___	Teacher Centered
Harmful	___	___	___	___	___	___	___	Beneficial
Necessary	___	___	___	___	___	___	___	Unnecessary

Describe: INQUIRY TEACHING

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	___	___	___	___	___	___	___	Bad
Boring	___	___	___	___	___	___	___	Interesting
Worthless	___	___	___	___	___	___	___	Valuable
Child Centered	___	___	___	___	___	___	___	Teacher Centered
Harmful	___	___	___	___	___	___	___	Beneficial
Necessary	___	___	___	___	___	___	___	Unnecessary

Describe: ROLE PLAYING

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	___	___	___	___	___	___	___	Bad
Boring	___	___	___	___	___	___	___	Interesting
Worthless	___	___	___	___	___	___	___	Valuable
Child Centered	___	___	___	___	___	___	___	Teacher Centered
Harmful	___	___	___	___	___	___	___	Beneficial
Necessary	___	___	___	___	___	___	___	Unnecessary

Describe: PROJECT PROBE ECONOMICS EDUCATION GUIDE FOR NEW YORK SCHOOLS

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	___	___	___	___	___	___	___	Bad
Boring	___	___	___	___	___	___	___	Interesting
Worthless	___	___	___	___	___	___	___	Valuable
Child Centered	___	___	___	___	___	___	___	Teacher Centered
Harmful	___	___	___	___	___	___	___	Beneficial
Necessary	___	___	___	___	___	___	___	Unnecessary

Describe: LEARNING BY DOING

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	___	___	___	___	___	___	___	Bad
Boring	___	___	___	___	___	___	___	Interesting
Worthless	___	___	___	___	___	___	___	Valuable
Child Centered	___	___	___	___	___	___	___	Teacher Centered
Harmful	___	___	___	___	___	___	___	Beneficial
Necessary	___	___	___	___	___	___	___	Unnecessary

Describe: EVALUATION OF STUDENT LEARNING

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	___	___	___	___	___	___	___	Bad
Boring	___	___	___	___	___	___	___	Interesting
Worthless	___	___	___	___	___	___	___	Valuable
Child Centered	___	___	___	___	___	___	___	Teacher Centered
Harmful	___	___	___	___	___	___	___	Beneficial
Necessary	___	___	___	___	___	___	___	Unnecessary

Describe: STUDYING THE PRESENT

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	___	___	___	___	___	___	___	Bad
Boring	___	___	___	___	___	___	___	Interesting
Worthless	___	___	___	___	___	___	___	Valuable
Child Centered	___	___	___	___	___	___	___	Teacher Centered
Harmful	___	___	___	___	___	___	___	Beneficial
Necessary	___	___	___	___	___	___	___	Unnecessary

Describe: PROBLEM SOLVING

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	___	___	___	___	___	___	___	Bad
Boring	___	___	___	___	___	___	___	Interesting
Worthless	___	___	___	___	___	___	___	Valuable
Child Centered	___	___	___	___	___	___	___	Teacher Centered
Harmful	___	___	___	___	___	___	___	Beneficial
Necessary	___	___	___	___	___	___	___	Unnecessary

Describe: MULTIPLE RESOURCE TEACHING

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	___	___	___	___	___	___	___	Bad
Boring	___	___	___	___	___	___	___	Interesting
Worthless	___	___	___	___	___	___	___	Valuable
Child Centered	___	___	___	___	___	___	___	Teacher Centered
Harmful	___	___	___	___	___	___	___	Beneficial
Necessary	___	___	___	___	___	___	___	Unnecessary

Describe: CASE STUDY APPROACH TO TEACHING

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	___	___	___	___	___	___	___	Bad
Boring	___	___	___	___	___	___	___	Interesting
Worthless	___	___	___	___	___	___	___	Valuable
Child Centered	___	___	___	___	___	___	___	Teacher Centered
Harmful	___	___	___	___	___	___	___	Beneficial
Necessary	___	___	___	___	___	___	___	Unnecessary

Describe: STUDYING THE FUTURE

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	___	___	___	___	___	___	___	Bad
Boring	___	___	___	___	___	___	___	Interesting
Worthless	___	___	___	___	___	___	___	Valuable
Child Centered	___	___	___	___	___	___	___	Teacher Centered
Harmful	___	___	___	___	___	___	___	Beneficial
Necessary	___	___	___	___	___	___	___	Unnecessary

Describe: THIS ECONOMICS INSERVICE COURSE

	Very	Quite	Slightly	Neutral	Slightly	Quite	Very	
Good	___	___	___	___	___	___	___	Bad
Boring	___	___	___	___	___	___	___	Interesting
Worthless	___	___	___	___	___	___	___	Valuable
Child Centered	___	___	___	___	___	___	___	Teacher Centered
Harmful	___	___	___	___	___	___	___	Beneficial
Necessary	___	___	___	___	___	___	___	Unnecessary

APPENDIX C

Survey Questionnaire

QUESTIONNAIRE: Please Return By May 1, 1971

Directions: The questionnaire is concerned with curriculum materials entitled, Economic Education: A Guide for New York Schools. A copy of that guide was forwarded to you last Fall. If you still retain that guide, please answer the questions below. If you have forwarded the guide to someone else in your institution, please pass this questionnaire along to that person so they can respond to these questions.

Position or Title of Respondent _____

Institution or Agency where employed _____

Please circle or underline the most appropriate response for each of the following:

1. Since receiving the materials, Economic Education: A Guide for New York Schools, I have reviewed them:

   Extensively Moderately Not at all

2. Since receiving the materials, I have shared and discussed them with:

   Several people 1 or 2 persons No one

   Please indicate with whom you have shared, i.e. elementary or secondary teachers, department chairman, curriculum coordinators, students, etc.:

3. Since receiving the materials, I have used them in my classes:

   Extensively Moderately Not at all Not applicable

4. If used in classes, what grade level(s) _____

5. Having reviewed the materials, I have concluded that it would be most beneficial to education to:

   Continue to revise and develop these materials

   Discard these materials as useless

   Other _____

The following are open-ended questions. We would like to have you react to each with several sentences that summarize your opinion or evaluation of the materials if you have reviewed or used them.

6. In my opinion, the behavioral objectives, as structured and presented in these materials are:

7. In my opinion, the emphasis this guide places on the development of critical thinking skills is:

8. If this guide is to be revised in the near future, I would recommend that the following weaknesses in the guide materials should receive priority consideration because:

   A.

   B.

   C.

   D.

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APPENDIX D

"t" Test Methodology

"t" Test Methodology

a. t Value

$$t = \frac{\bar{x}_{pre} - \bar{x}_{post}}{\sigma_{diff\ \bar{x}_1 - \bar{x}_2}}$$

b. Standard Error of the Difference Between Means

$$\sigma_{diff} = \sqrt{\left(\sigma_{\bar{x}_{pre}}\right)^2 + \left(\sigma_{\bar{x}_{post}}\right)^2 - 2r\left(\sigma_{\bar{x}_{pre}}\right)\left(\sigma_{\bar{x}_{post}}\right)}$$

c. Standard Error of the Mean

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{N - 1}}$$

d. Mean

$$\bar{X} = \frac{\sum x}{N}$$

e. Standard Deviation

$$\sigma = \frac{1}{N}\sqrt{N\sum X^2 - \left(\sum X\right)^2}$$

f. Pearson's Product-Moment Correlation Coefficient

$$r_{xy} = \frac{N\sum XY - \left(\sum X\right)\left(\sum Y\right)}{\sqrt{\left[N\sum X^2 - \left(\sum X\right)^2\right]\left[N\sum Y^2 - \left(\sum Y\right)^2\right]}}$$

APPENDIX E

Taba Social Studies Inference Test

Name _____

School _____

Teacher _____

Grade _____ Date _____

Explanation to Students:

This booklet has some stories. After each story there are some sentences about the story. First, I will read the story out loud to you and you can follow along in your booklet. Then I will read each of the sentences and you are to decide whether the sentence is probably true, probably false, or if you can't tell from the story whether the sentence is probably true or probably false.

Decide on an answer for each sentence that I read to you. Mark your answer with a heavy black mark. If you think the answer is probably true, mark in the space under "Probably True." If you think the answer is probably false, mark in the space under "Probably False." If you can't tell from the story whether the sentence is probably true or probably false, mark in the space under "Can't Tell."

Some of the sentences are "Probably True" and some of the sentences are "Probably False." You can't tell if some of them are true or false.

Example:

Mr. Jones was a farmer in the midwest. When he heard about the discovery of gold in California he left his family and went to California.

1. Mr. Jones went with his family to California.

2. Mr. Jones went to California because he did not like the place in which he lived.

Martha left her school friends and moved with her family to America. Soon after she got to America she started to school. On her first day at school the other children looked at Martha and talked about her. She did not speak to other children, and at recess she sat alone and watched them play. She told the teacher that she was unhappy. When she got home from school she cried.

	Probably True	Can't Tell	Probably False
1. Martha wanted to play with the other children.	____	____	____
2. Martha will make friends at this school.	____	____	____
3. Martha speaks English.	____	____	____
4. Martha will teach the children how to play some new games.	____	____	____
5. Martha stayed home from school the next day.	____	____	____
6. The teacher likes Martha.	____	____	____

****

Mr. Edwards' farm was in the valley. He had just finished planting his seeds. He could see the snow on the mountains. He hoped the snows would not melt too fast. The fire last summer burned most of the trees on the mountainside.

	Probably True	Can't Tell	Probably False
7. More water will flow into the valley this year than last.	____	____	____
8. Mr. Edwards' seeds will die of frost.	____	____	____
9. Topsoil from the mountain will be washed down into the valley.	____	____	____
10. Mr. Edwards planted his seeds after the snow fell.	____	____	____
11. Mr. Edwards will have enough water for his farm this year.	____	____	____
12. Mr. Edwards' farm is on the mountainside.	____	____	____

****

Mr. and Mrs. Koski remembered the day they docked in New York. They had been married only two months when they arrived from Poland. America was a strange land to them. Mr. Koski worked hard for many years so his children could go to school. Ed, the oldest child, is now in college and will one day become a lawyer.

	Probably True	Can't Tell	Probably False
13. The Koskis spoke English when they first came to America.	____	____	____
14. The Koskis came to America last year.	____	____	____
15. Ed is proud of his father.	____	____	____
16. The Koskis will return to Poland to live.	____	____	____

****

Pambo is twelve years old. There are no schools where Pambo lives. He does not read or write. He fishes with his father every day. Pambo is learning to cut wood from tree bark in order to make a canoe. His father teaches him many things and is proud of how well Pambo can do them.

Tom is also twelve years old. He works hard at school and gets good grades. When he comes home from school he reads his books so that he will learn things that will help him.

	Probably True	Can't Tell	Probably False
17. Tom is smarter than Pambo.	____	____	____
18. Pambo's father can read and write.	____	____	____
19. Pambo is having trouble learning how to make canoes.	____	____	____

Pambo and his family are going to move to the city where Tom lives.

20. Pambo will go fishing every day with his father.	____	____	____
21. Pambo will teach Tom how to make canoes.	____	____	____
22. Tom reads every day because he is behind in his school work.	____	____	____

****

Henry's father is a farmer. Henry is twelve years old. During the week Henry goes to school and he wants to become a teacher. On weekends he works on the farm and has learned to drive a tractor. His father is happy that Henry wants to become a teacher.

Taro is also twelve years old. Taro's father is a hunter. Taro's grandfather also was a hunter. Taro is learning to hunt from his father. Many times on the way home from hunting Taro stops to watch the fisherman. One day Taro asked his father, "Can I become a fisherman?" Taro's father said, "No, because I am a hunter."

	Probably True	Can't Tell	Probably False
23. Henry will become a teacher.	____	____	____
24. Henry's father wants Henry to become a farmer.	____	____	____
25. Henry's grandfather was a farmer.	____	____	____
26. Taro will leave the tribe and become a fisherman.	____	____	____
27. Taro's sons probably will become hunters.	____	____	____

****

Three months after the Picker had been invented more flander had been picked than for all of the year before. All of the machines at the textile mills were working day and night. Six months after the Picker had been put to use the mills realized that they could not process the amount of flander sent to them.

		Probably True	Can't Tell	Probably False
28.	Flander is a type of cotton.	____	____	____
29.	The Picker will be used only three months each year.	____	____	____
30.	Flander is one of the most important products of this country.	____	____	____
31.	Flander is used in making cloth.	____	____	____
32.	The mills will change the way they process flander.	____	____	____
33.	Less flander will be grown next year.	____	____	____
34.	The price of materials made of flander will go down.	____	____	____

****

Mr. Harvey spoke to the Founders Club last night. Here is part of what he said:

> "In the early days of our country many people settled here from other countries. They came here to establish a way of life that was better than they had in their own countries. They helped build a strong America because they believed in America. Today the foreigners who come here do not seem to appreciate the freedom and opportunity America offers them. We ought to be more careful about who we let in and require an oath of these foreigners before we accept them."

		Probably True	Can't Tell	Probably False
35.	Mr. Harvey feels that people who take an oath can be trusted.	____	____	____
36.	Mr. Harvey is against more people coming to America from other lands.	____	____	____
37.	Mr. Harvey believes the early settlers were good for America.	____	____	____
38.	Mr. Harvey has studied a great deal about America.	____	____	____
39.	Mr. Harvey believes that people born in America are more loyal than people coming from other lands.	____	____	____
40.	Mr. Harvey believes that there are too many foreigners in America now.	____	____	____
41.	Mr. Harvey's grandfather was probably born in America.	____	____	____
42.	Mr. Harvey is running for political office.	____	____	____

****

Thirty years ago Mr. Rand bought a thousand acres of farmland. Many new industries have developed in the city nearby. About ten years ago Mr. Rand sold half his farmland to people who build homes. Last year Mr. Rand sold two hundred acres more and many homes have already been built on this land.

		Probably True	Can't Tell	Probably False
43.	The people are coming to work on Mr. Rand's farm.	____	____	____
44.	They are building houses for the people coming to work in the industries.	____	____	____
45.	Mr. Rand will sell the rest of his farmland to the people building homes.	____	____	____
46.	Mr. Rand still owns half of the farmland that he bought thirty years ago.	____	____	____
47.	Next year there will be more people working in industry.	____	____	____
48.	Mr. Rand sold his farmland for more money than he paid for it.	____	____	____
49.	They will need more schools.	____	____	____
50.	The people who had worked on Mr. Rand's farm went to work for industry.	____	____	____
51.	The people who bought Mr. Rand's farmland were farmers.	____	____	____

****

People A:

The vote had been very close. A number of the representatives did not like the outcome. They decided to go back to their districts and appeal to the people for support. This was the fourth important issue on which the President had been defeated.

People B:

The Chief asked his council for advice and then he told his people what he had decided. The people listened to their Chief. When he was through talking they cheered.

		Probably True	Can't Tell	Probably False
52.	People A and People B have the same system of government.	____	____	____
53.	The representatives of People A are selected by the President.	____	____	____
54.	People A will re-elect the representatives who voted for the bills the President supported.	____	____	____
55.	People B vote on what the Chief wants to do.	____	____	____
56.	The Chief of People B knew his people would do what he says.	____	____	____
57.	Most of the representatives of People A agreed on the issue that they had just voted on.	____	____	____
58.	People B vote for the members of the council.	____	____	____

****

Mr. Jones owns a grocery store. Often, in the last few weeks, he has not had enough bread for his customers. It has been an unusually dry season in the area and the wheat crop has not done well this year.

		Probably True	Can't Tell	Probably False
59.	The delivery trucks have broken down so Mr. Jones is unable to get bread.	____	____	____
60.	There was as much rainfall this year as last year.	____	____	____
61.	The bakers have been very busy this year.	____	____	____
62.	Mr. Jones will start baking his own bread.	____	____	____
63.	They are using the wheat to make other things this year rather than for making bread.	____	____	____
64.	Mr. Jones will close his store until more bread is baked.	____	____	____
65.	The wheat crop was of poor quality.	____	____	____
66.	The price of bread is higher this year than last year.	____	____	____
67.	Mr. Jones will make less money this year than last year.	____	____	____
68.	More wheat will be harvested this year than last.	____	____	____

****

APPENDIX F

Dissemination of Curriculum Guide

DISSEMINATION OF CURRICULUM GUIDE

The guide, Economics Education: A Guide For New York Schools, has since been disseminated extensively to teachers, administrators, curriculum people, and economics educational specialists at the local, state, and national levels. The list below summarizes the project's dissemination efforts:

1. Copies to all principals, supervisors, curriculum specialists, and secondary social studies teachers in the 47 school districts within the project's region.

2. Copies to all elementary teachers in the project region who previously used other project materials - about 100 teachers.

3. Copies to 450 teachers and student teachers in 65 school districts of upstate New York. These were distributed following demonstrations set up through the Student Teaching Office at the State University College at Oneonta.

4. Copies to 97 Councils and Centers of Economics Education and Research located in all 50 states.

5. Copies to all 25 supervisors of elementary and secondary social studies student teachers at the State University College at Oneonta.

6. Copies to members of the New York State Education Department - Bureaus of Elementary and Secondary Social Studies Education.

7. The guide has been microfiched, cataloged, and made available nationally by the ERIC-ChESS Social Studies Consortium, Boulder, Colorado. An abstract of the guide first appeared in the January, 1971, catalog supplement entitled, "Keeping Up," a monthly newsletter from ERIC-ChESS.

8. Requests since publication have been received from 35 educational agencies in nine states. All these requests have been honored.

In all, the project printed:

1. 800 copies of the guide for elementary grades K-6.
2. 400 copies of the guide for secondary grades 7-11.
3. 175 copies of the guide for elementary and secondary grades K-11.
4. 25 copies of the guide for elementary and secondary grades were left unbound for distribution by grade level to student teachers.

Of these 1400 printed copies, the project still has on hand:

1. 152 copies for elementary grades K-6.
2. 66 copies for secondary grades 7-11.
3. 62 copies for elementary and secondary grades K-11.
4. Various quantities of unbound grade levels.

These remaining copies will be turned over to the Center for Economics Education and Research at the State University College at Oneonta. That Center will continue to pursue the activities begun by this project.

APPENDIX G

Teachers Participating in the Curriculum Experimentation Project

TEACHERS PARTICIPATING IN THE CURRICULUM EXPERIMENTATION PROJECT

The project wishes to acknowledge the extensive contributions made by the 35 teachers in four school districts. These teachers labored diligently during the 1970-71 school year with the revised curriculum materials published by this project.

GREENE CENTRAL SCHOOL

Alice Salisbury
Claire Anne Nielsen
Adrienne Silvernail
Ann Morey
Geneva Kraus
Sandra Utter
Jeanne Marshman
Marka Welsh
Joan Allis
Gretchen Sperling
Deborah Sweet
Susan English
Rochelle Weiner
Steve McMullen
Rodney Auwater
Audrey Cooper
Joanne Yacono
Lorraine Hashey
Edwin Gibson
Mary Jane Durkee
Claucine Evans
Richard Howell
Diana Howell
William Rabe
Robert Shevlin
Randolph Geraghty

LAURENS CENTRAL SCHOOL

Anna May Church
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SIDNEY JUNIOR-SENIOR HIGH SCHOOL

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Richard Lewis
John Gallagher
Irma Haller
Douglas Quinney
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ONEONTA JUNIOR HIGH SCHOOL

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